

Measuring and modeling solar flares with SDO EVE.

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The Flare Irradiance Spectral Model (FISM) currently provides estimations of the solar Vacuum Ultra-Violet (VUV; 0.1-190 nm) irradiance from 1947 to present at 1 nm bins and 60 second temporal resolution. The accuracy of FISM is limited to 1nm because the TIMED SEE Level 3 and Level 3A measurement, for which the FISM relationships were based on, were at 1nm. With the launch of the Solar Dynamics Observatory (SDO) in Feb 2010, the EUV Variability Experiment (EVE) will provide more accurate, increased spectral resolution (0.1 nm) measurements from 6 nm to 106 nm every 10-seconds and almost 100% duty cycle. EVE also observes additional broadband measurements for 0.1-7 nm, some EUV bands from 16 nm to 40 nm, and Hydrogen Lyman alpha at 121.6 nm. Along with the better spectral resolution of EVE leading to similar spectral resolution improvements in FISM, other significant improvements provide by SDO/EVE measurements will be multi-thermal gradual phase decay, impulsive phase center-to-limb variation characterization, non-flare sub-daily variations, and multi-thermal proxies. SDO/EVE observations of various solar flares with different characteristics will be presented, with the discussion theme focused on how EVE observations will help improve the accuracy of the FISM in the future. The final topic will present the updated FISM website that now has easier access to the FISM results and produce real-time updates that are useful for Space Weather studies.